GPC Light Shaper

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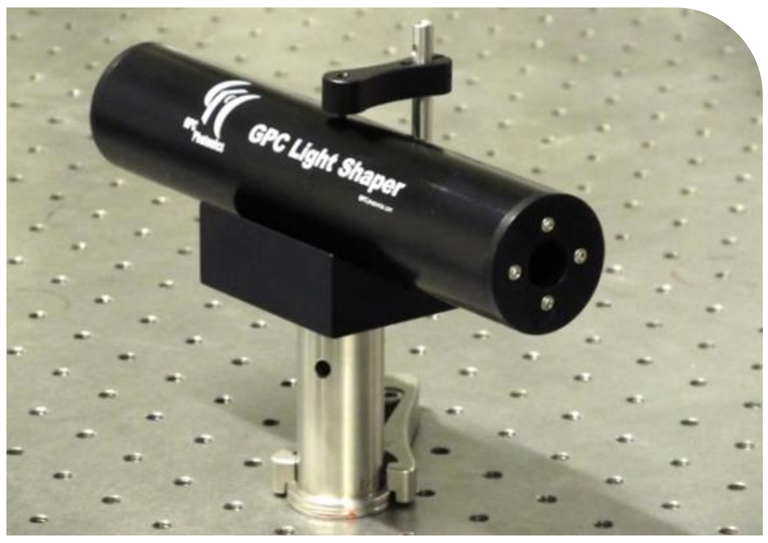
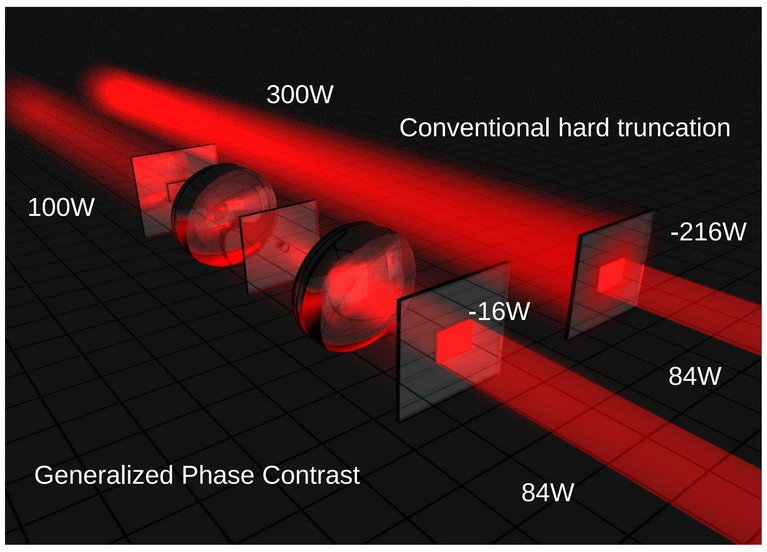
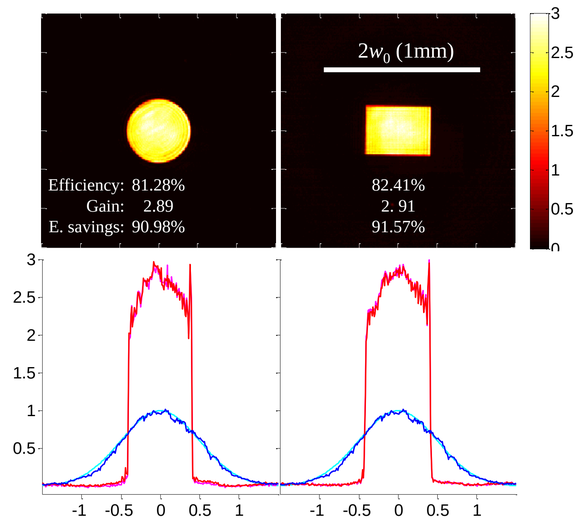
Generalized Phase Contrast is a disruptive light sculpting technology for studying brain functionalities via light-activated neuron control. GPC dynamically reshapes conventional or multi-wavelength lasers for precise and efficient neuron targeting. GPC also makes existing laser systems much more efficient through intelligent laser illumination.



Efficiently illuminate using a static GPC LS

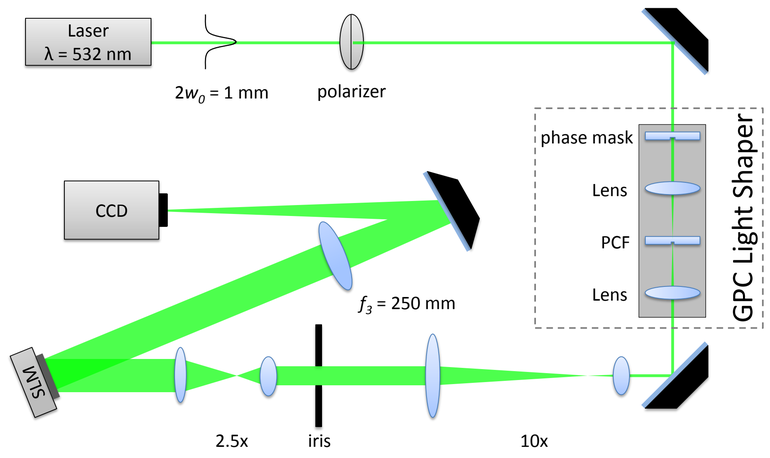




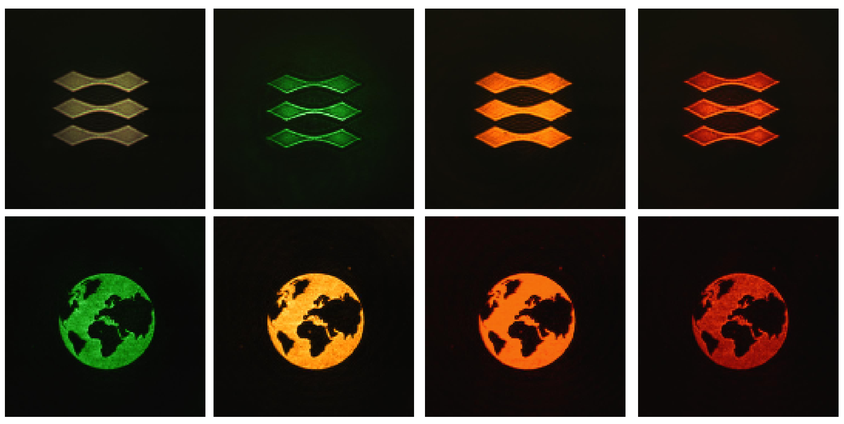
To obtain a uniformly illuminated rectangle with 84W, up to 216W is normally blocked. GPC, on the other hand can use 84W out of 100W, saving 200W (93%)

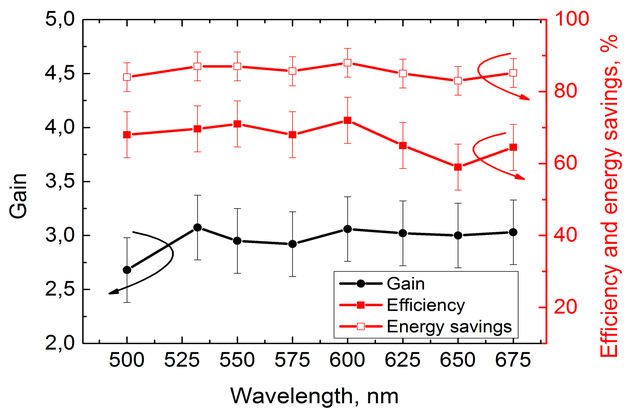
Typical illumination shape requirements

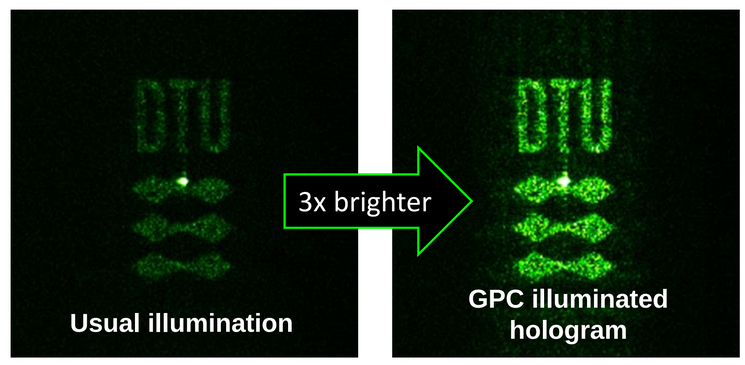
- Circle: maximizes light through objective's back aperture
- Rectangle: maximizes SLM utilization



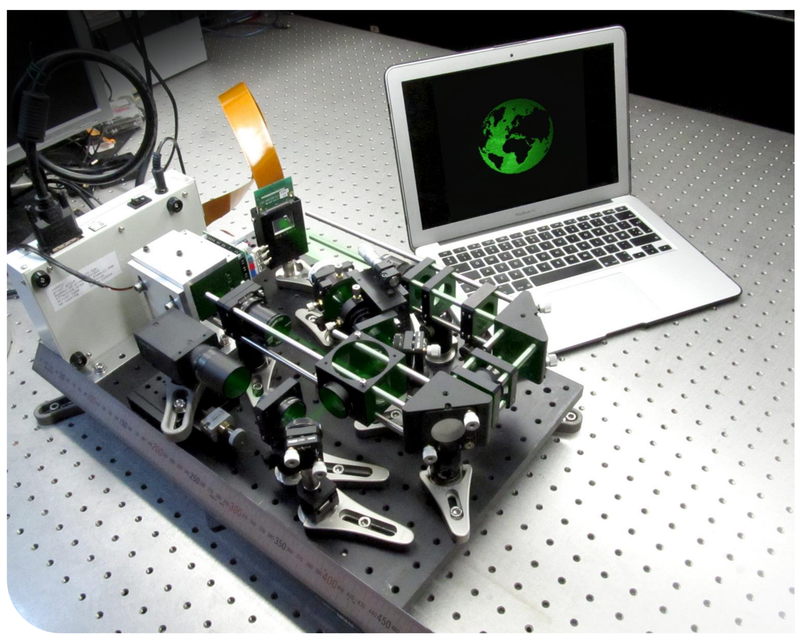
Multi-spectral light shaping using a SuperK™

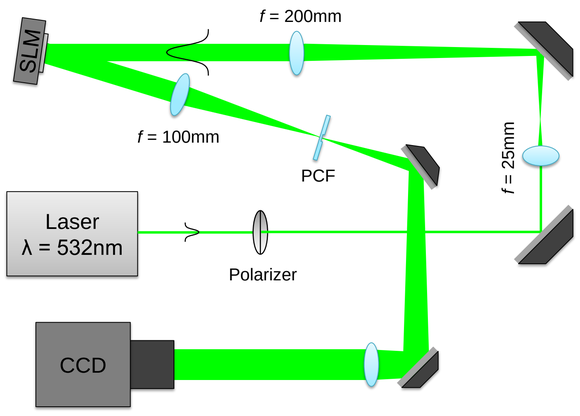


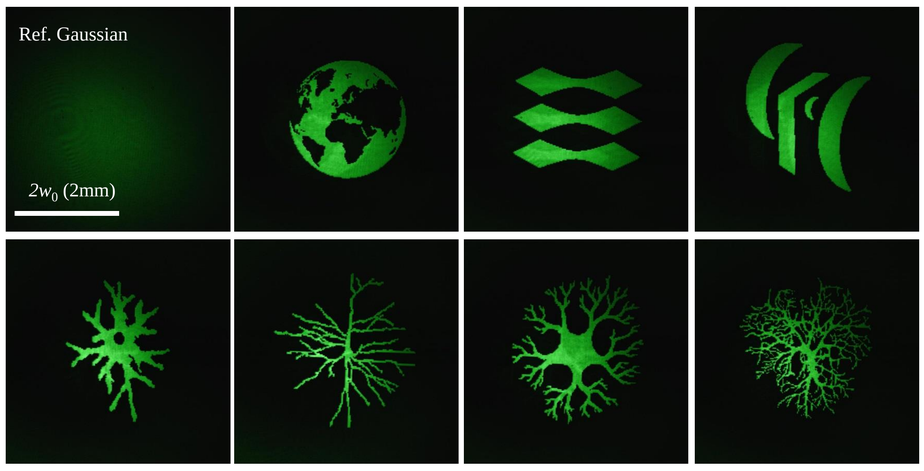




Dynamic light shaping for biophotonics applications







Features

- Real time/low overhead light re-programmability
- Contiguous extended patterns
- Speckle & noise free

Applications

- Neurophotonics & optogenetics
- Materials processing
- Optical trapping and manipulation

References

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- A. Bañas, O. Kopylov, M. Villangca, D. Palima, and J. Glückstad, "GPC Light Shaper: static and dynamic experimental demonstrations," Opt. Express **22**, 23759-23769 (2014).
- O. Kopylov, A. Bañas, M. Villangca, D. Palima, and J. Glückstad, "GPC light shaping a supercontinuum source," Opt. Express **23**, 1894-1905 (2015)

Websites

- www.ppo.dk
- www.GPCphotonics.com

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COPENHAGEN CLEANTECH CLUSTER
HAMAMATSU PHOTON IS OUR BUSINESS
NKT Photonics the power of light
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